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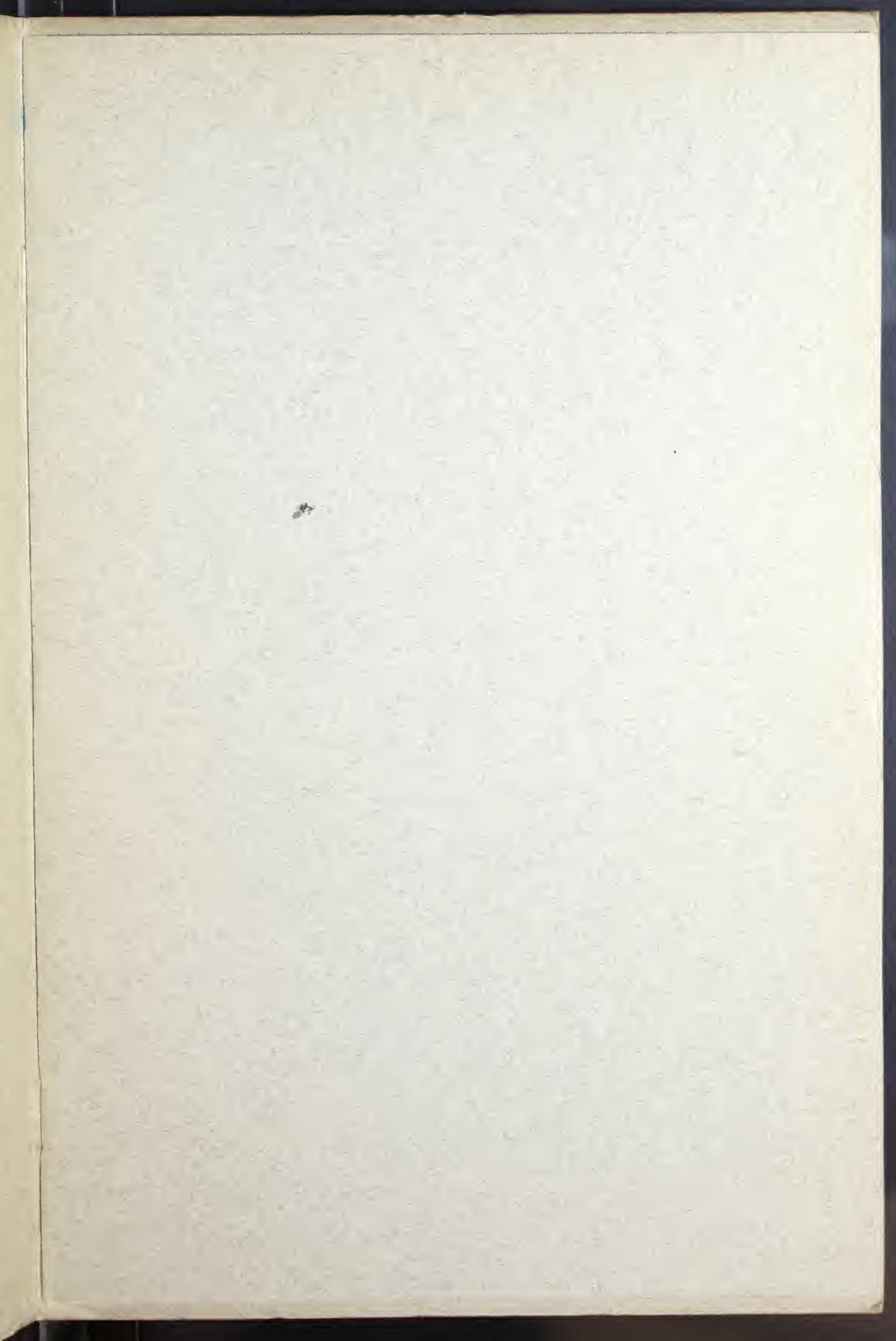
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# Alternating and Direct Current FANS

CABLE ADDRESS:

"ONEPHASE", ST. LOUIS, U. S. A.

## CODES

Bentley's-Lieber's-A. B. C. (5th Edition, Improved)—A. B. C. (6th Edition, 5 Letter)  
Western Union (Universal Edition)  
Western Union (5 Letter)—and Private

BULLETIN NO. 32

**Century Electric Company**  
Main Office and Works, 1827 Pine Street  
ST. LOUIS, MO., U. S. A.

## ALTERNATING AND DIRECT CURRENT FANS

*Continued* fans are manufactured in 9, 12 and 16 inch oscillating and stationary models for both alternating and direct currents. We also make a 58 inch ceiling fan for alternating current only.

Their design and construction is such that when viewed from the standpoint of appearance, efficiency, convenience in handling, the amount of air moved, speed control, strength and durability, they will prove highly satisfactory to all interested in fans. Keep-A-Running ability has been the governing factor in their construction.

Fans intended for operation in Tropical countries where the climate is especially humid are given special insulation. This special insulation, together with the fact that all fan motors are fully enclosed, insures satisfactory operation even under the most extreme climatic conditions.

Each part is constructed of the best material adapted to the particular requirement, and is interchangeable through its having been made to fit standard jigs and gauges.

Each fan, after a substantial period of operation, is carefully tested and must meet the test limits we have established as standard before being approved by our inspectors. A record is kept of the performance of each fan.



Fig. No. 513

Illustrating 9 and 12 inch oscillating multiple speed fans

## ALTERNATING AND DIRECT CURRENT PORTABLE FANS

### Construction of Motor

The motors used for operating all ~~Century~~ direct and alternating current fans are fully enclosed to protect the winding from dirt and moisture in humid climates. The fields are constructed of sheet steel laminations.

The bearings are made of phosphor bronze, with ample provision for lubrication.

The base, or stand, is made of drawn steel, light in weight, but strong and substantial.

The blades are made of brass, operate quietly, and are adjusted to move the maximum amount of air consistent with quiet operation.

The fan blade guards are heavy iron wire, electrically welded at each joint and point of contact. Note that one support is provided at the top of the guard where one usually grasps the fan to move it.

All 9, 12 and 16 inch portable fans are provided with 8 feet of black flexible cord and an Edison base separable attachment plug.

The standard finish of all oscillating and stationary fan bodies, stands and guards is black enamel. The blades are made of brass, dipped and lacquered.

The oscillating fans have an oscillating mechanism which consists of a double worm gear, crank disc and connecting rod. The steel worms and the phosphor bronze gears are very substantial and are certain to give satisfactory results for many years. They are completely enclosed in a grease case which contains a high grade graphite grease, insuring smooth operation. A lever is provided to engage or disengage the oscillating mechanism, thus changing from oscillating to stationary, and vice versa.

These fans, when operating at full speed, will oscillate from four to six times per minute, depending upon the frequency of the circuit for which they are constructed. This rate of oscillation permits a maximum volume of air to be placed in motion and be effective at more distant points than with a greater number of oscillations.

### Stand

### Blades

### Guards

### Cord and Plug

### Finish

### Oscillating Fans Specifica- tions

### Oscillating Speed

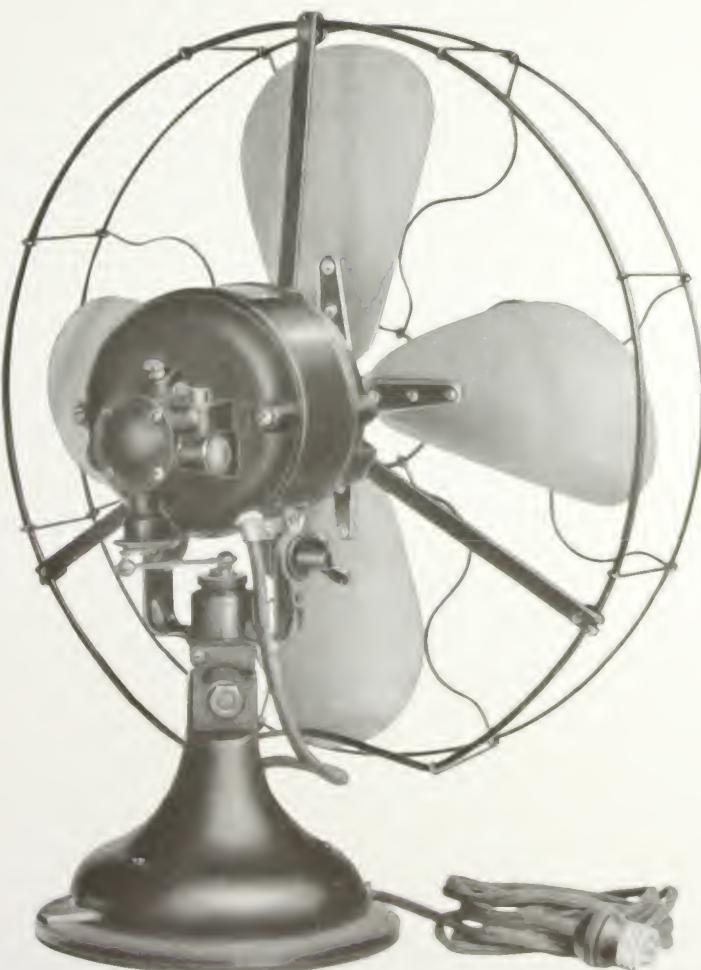


Fig. No. 514  
Illustrating the 16 inch oscillating model

## ALTERNATING AND DIRECT CURRENT PORTABLE FANS

### Range of Oscillation

Two ranges of oscillation may be secured by shifting the crank pin, the maximum being about 90 degrees. A change of direction of oscillation may be made without adjusting any part of the fan, simply by turning the fan on the swivel stud. An escapement device is provided to prevent damage should the fan oscillate into contact with a stationary object.

### Speed Regulation

All fans that are provided with a multiple point switch for speed regulation have the speed regulating coil located in the stand. The regulating coil reduces the current consumption approximately in the same proportion as the reduction in speed. With a current of normal voltage and frequency at the fan motor terminals a speed regulation of 25% to 30% may be expected on 25 and 30 cycle fans; 30% to 40% on 40, 50 and 60 cycles; and 25% to 30% on D. C. fans, with a corresponding reduction in the current consumption. This provides ample variations to obtain a suitable volume of air for practically any condition.

### Wall Mounting

*Centur* fans can be adjusted for mounting on the wall without extra parts. Instruction cards attached to each fan give full directions for this adjustment. A positive lock holds the motor at any desired position to which it may be tilted.

### Weight

The construction of the fan results in a fan comparatively light in weight, but secured without a sacrifice of active material. The 9 inch fan weighs approximately 12 pounds; the 12 inch fan 13 pounds; and the 16 inch fan 22 pounds, a little heavier, but still light enough to be easily moved from one place to another.



Fig. No. 515

Illustrating in approximately normal size, the Oscillating Mechanism,  
which is packed in grease, of 9, 12 and 16 inch models

## ALTERNATING CURRENT FANS

### Construction of Motor

The motors used for operating all ~~current~~ alternating current fans are the induction type. As no moving wire is employed in their construction the possibility of breaking down is reduced to a minimum. The windings are placed in partially closed slots, and thoroughly impregnated with insulating paint.

The squirrel cage type of motor is built up of sheet steel laminations, mounted upon a shaft which is ground all over to accurate dimensions, resulting in low friction losses in, and long life to, the bearings.

### Oscillating Fans

The oscillating mechanism of the 9, 12 and 16 inch portable fans is described on page 4 and illustrated by Fig. 515. All three sizes of the oscillating fans are equipped with a three speed switch. The base or stand cover, serving as a protection to the switch and as a bottom for the fan, is a pressed steel plate, felt covered, to protect the furniture.

These fans present a neat and attractive appearance, even more so than can be depicted by illustrations in Figs. 513 and 514.

### Stationary Fans

The 16 inch stationary fan is built to the same specifications as the 16 inch oscillating fan, including the three speed switch.

The 9 inch and 12 inch stationary fans have the same general appearance as the corresponding sizes of the oscillating and multiple speed fans. In these two sizes no switch or speed coil is provided. They are single speed fans. See Fig. 516.



Fig. No. 516  
Illustrating the 12 inch single speed fan

## DIRECT CURRENT FANS

### Motor

Direct current fans have the same general appearance as the corresponding sizes and types of alternating current fans. The motor is fully enclosed. Both the field and armature cores are built up of laminations punched from the same grade of sheet steel. Both field coils and armature are wound with enamel and cotton covered wire, and thoroughly impregnated with insulating paint.

### Commutator Brushes

The commutator is built of horizontal copper bars, insulated with the best quality of soft amber mica. The square carbon brush is carried in a cartridge type of brush holder. The carbon brush may be removed by unscrewing an insulated head metal screw.

### Oscillating Fans

The oscillating mechanism of the 9, 12 and 16 inch portable fans is described on page 4, and illustrated by Fig. 515. All three sizes of the oscillating fans are equipped with a three speed switch. The base or stand cover, serving as a protection to the switch and as a bottom for the fan, is a pressed steel plate, felt covered, to protect the furniture.

### Stationary Fans

The 16 inch stationary fan is built to the same specifications as the 16 inch oscillating fan, including the three speed switch.

The 9 inch and 12 inch direct current stationary fans are identical in construction with the multiple speed fans of similar sizes, excepting in these two sizes no switch or speed coil is provided. They are single speed fans. See Fig. 516.

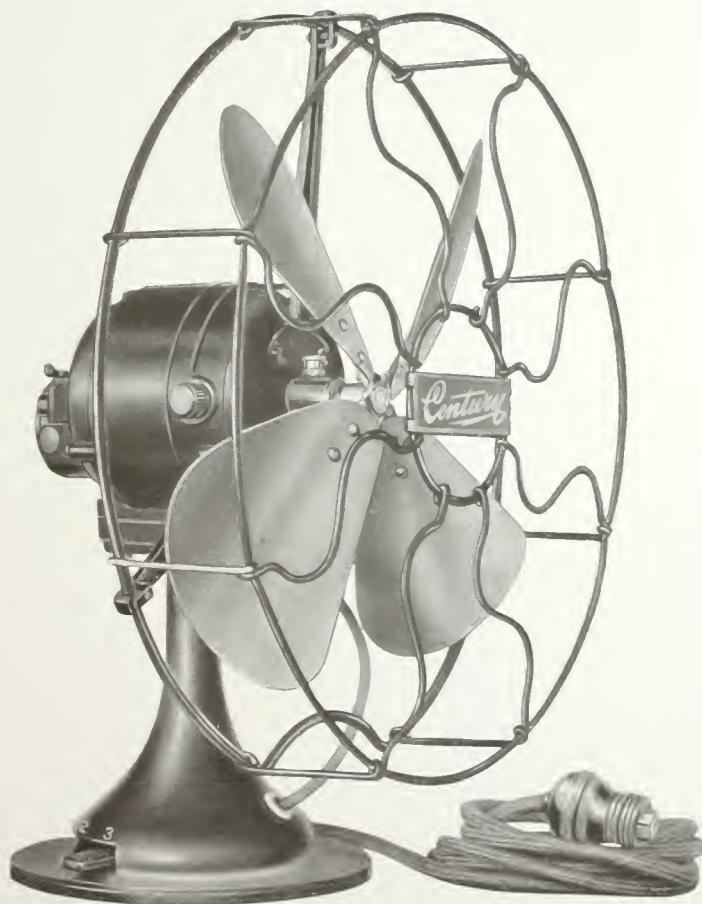


Fig. No. 517

Illustrating the 9 and 12 inch Direct Current models

## ALTERNATING CURRENT CEILING FANS

### Air Moved

*Cont.* alternating current ceiling fans are designed to meet the demand for a fan to move a large volume of air when temperature and climatic conditions require, and also to operate sufficiently slow to provide only such circulation of air as will prevent discomfort and fatigue from oppressive atmosphere in crowded, poorly ventilated and over warm rooms, or to cause a more even temperature throughout a room in cold weather.

### Speed Regulation

On the highest speed, the 25, 50 and 60 cycle fans will displace approximately 10,000 cubic feet of air per minute when operating on a circuit of normal frequency and voltage, while the speed regulating coil provides for a maximum reduction of 30% to 40% on 25 and 30 cycle circuits, and 50% to 65% on 40, 50 and 60 cycle circuits, with a corresponding reduction in current consumption.

### Design and Construction

The motor is of the induction type, no moving wire or contacts being used in its construction. This accounts for the long life possible with this type of fan. See Fig. No. 521 for general assembly.

### Bearings Lubrication

The vertical shaft is ground to accurate dimensions, so that there is no binding or sticking, and the weight of the rotor is supported on a ball bearing race, which is immersed in oil. A spiral oil groove is cut in the rotor bearing which insures a constant and positive circulation of oil.

The oil cup is intended to carry three ounces or six tablespoonsfuls of oil, which is sufficient to insure proper lubrication for a substantial period of time. The oil cup may be removed for inspection or refilling by merely unscrewing it from its normal position without disturbing the fan in any way. (If wired for lights, such wires must be disconnected.)



Fig. No. 518  
Illustrating the 58 inch Ceiling Fans

## ALTERNATING CURRENT CEILING FANS

### Switch Speed Coil

All ceiling fans are regularly equipped with a three speed switch, which is located at the top of the fan where it cannot be easily damaged, together with a speed regulating coil of the auto-transformer type, which reduces the current consumption in approximately the same proportion as the reduction in speed.

### Wall Switch

The speed regulating coil may be mounted in, and a three speed snap switch mounted on, a short cylindrical japanned iron box suitable for wall mounting, if desired. These are furnished at a small additional charge. Only two wires are necessary from the wall box to the fan. Such fans and equipment cannot be furnished from stock.

### Blades

The wood blades are made of a carefully selected kiln dried stock, and have a highly polished mahogany finish. The blades sweep is 58 inches.

### Finish

The fan motor body is finished in black enamel, while the blade shank, oil cup and canopy are finished in oxidized copper.

### Electroliers

The bottom flange on the oil cup is drilled and tapped with  $\frac{1}{8}$  inch U. S. fixture threads to permit of the installation of electrolier arms, should they be desired. When the fan is shipped, the holes are plugged with flush screw plugs.

## ALTERNATING AND DIRECT CURRENT VENTILATING FANS

The blades are 16 inches in diameter, only this one size being furnished. The fan motor body is bolted to the supporting ring, which is made of cast iron, 20 inches outside diameter.

The standard fully enclosed portable fan motor used on stationary fans, both alternating and direct current, is supplied with the ventilating fan. The motor is supplied with flexible cord terminals 24 inches long.

Ventilating fans are supplied only with controller, the regulating coil being necessary to start the A. C. fan. The regulating coil is mounted in, and a three speed snap switch is mounted on, a short cylindrical japanned iron box. See Fig. 520.

With a current of normal voltage and frequency at the fan motor terminals a speed regulation of 25% to 30% may be expected on 25 and 30 cycle fans; 30% to 40% on 40, 50 and 60 cycle fans; 25% to 30% on direct current fans, with a corresponding reduction in current consumption.

Construction

Motor

Controller

Speed  
Regulation



Fig. No. 519

Illustrating 16 inch Ventilating Fan



Fig. No. 520

Illustrating Controller for Ventilating Fan

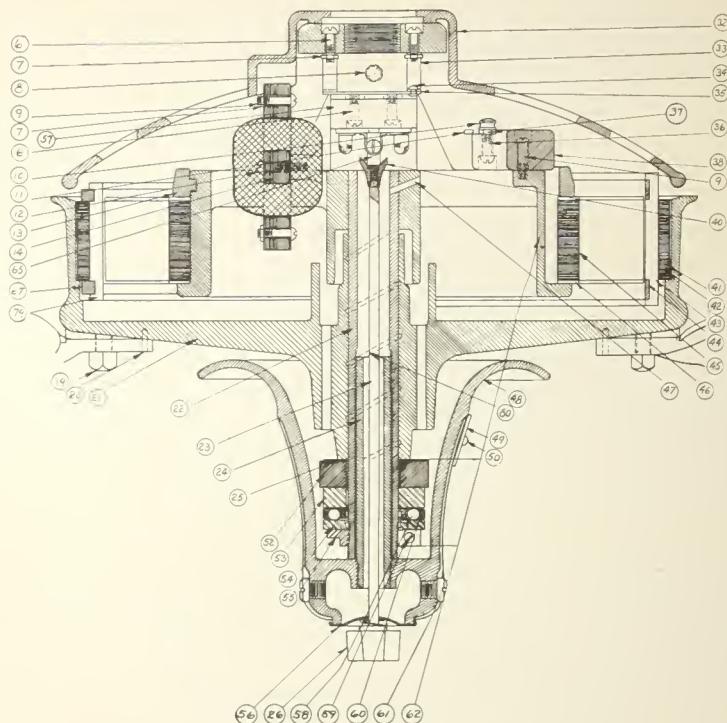


Fig. No. 521  
Ceiling Fan General Assembly

6. Round head iron screw.	43. Armature bars.
7. Hexagon head brass nut.	44. Armature short circuiting ring.
8. Headless set screws.	45. Field sheet steel laminations.
9. Round head iron screw	46. Field fibre.
10. Thumb nut.	47. Taper pin.
11. Terminal clips.	48. Oil cup.
12. Round head iron screw.	49. Name plate.
13. Field ring.	50. Name plate rivet.
14. Speed regulating coil.	52. Felt washer.
19. Hexagon head cap screw.	53. Ball bearing washer—upper.
20. Blade shank dowel pin.	54. Ball bearing washer—lower.
21. Armature casting.	55. Lock nut.
22. Armature shaft.	56. Oil cup washer.
23. Switch stem.	57. 3 speed switch.
24. Oil cup nipple.	58. $\frac{1}{4}$ inch steel balls.
25. Ball bearing washer tube.	59. Fillister head screw.
26. Switch stem.	60. Ball bearing cage.
32. Field cover.	61. Oil cup plugs.
35. Switch stem adapter plate.	62. Field castings.
38. Porcelain terminal block.	65. Switch stem adapter.
40. Switch stem guide.	67. Armature short circuiting ring.
41. Armature insulating strip.	79. Armature bars.
42. Armature iron.	80. Spiral oil groove.



